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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,935	07/27/2001	Vittorio Castelli	YOR9-2001-0461 (8728-524)	8782
46069	7590	02/01/2006	EXAMINER	
F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			HIRL, JOSEPH P	
			ART UNIT	PAPER NUMBER
			2129	

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/916,935	Applicant(s) CASTELLI ET AL.	
	Examiner Joseph P. Hirl	Art Unit 2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40, 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered November 7, 2005 for the patent application 09/916,935 filed on July 27, 2001.
2. All prior office action is incorporated by reference.

Status of Claims

3. Claims 1-40 and 42 are pending in this application.

New Matter

4. Claim 42 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification and drawings are silent on segmenting of variable length historic data, comparison of segmented historic data, comparison of unequal length of historic data and comparison of non-homogeneous type data.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term “rejuvenating” is a relative term and renders the claim indefinite.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Sweet et al (U.S. Patent 6,836,800 referred to as **Sweet**).

Claim 1

Sweet anticipates monitoring, over a period of time, a contemporaneous resource utilization and a number of active devices to obtain monitored values of the

contemporaneous resource utilization and the number of active devices (**Sweet**, c 1, l 12-45; c 2, l 5-20; Figs. 8-15); and predicting the subsequent resource utilization, based upon the monitored values of the contemporaneous resource utilization and the number of active devices (**Sweet**, c 3, l 25-41; Examiner's Note (EN): para 11 applies; the number of active devices is integrated into the system operation as shown in Fig. 1).

Claims 2, 15, 16

Sweet anticipates computing a regression model of prediction parameters on the member of active devices (**Sweet**, c 6, l 58-65; EN: as determined by the sample or example); constructing an empirical distribution of the number of active devices (**Sweet**, Fig. 8); and combining the regression model and the empirical distribution to produce a prediction model (**Sweet**, c 6, l 58-65; EN: μ and σ define the model).

Claims 3, 17

Sweet anticipates step of combining the regression model and the empirical distribution comprises the step of computing, with respect to the empirical distribution, an expected value of each of one or more of the prediction parameters (**Sweet**, c 6, l 58-65; EN: μ and σ define the model).

Claims 4, 18

Sweet anticipates for each of the one or more prediction parameters, for each of the monitored values of the number of active devices, computing confidence intervals for the one or more prediction parameters (**Sweet**, c 7, l 26-32); and selecting a corresponding one of the confidence intervals for the expected value of each of the one

or more prediction parameters (**Sweet**, c 7, l 26-32; EN: such would be for the value of μ).

Claims 5, 19

Sweet anticipates computing confidence intervals for the prediction parameters, for each of the monitored values of the number of active devices (**Sweet**, c 7, l 26-32; c 8, 30-37 EN: such as a Cisco router); and combining the confidence intervals with the empirical distribution, to produce modified confidence intervals for the prediction parameters devices (**Sweet**, c 8, 30-37).

Claim 6

Sweet anticipates the step of managing a resource capacity of the computer system, based upon the predicted subsequent resource utilization (**Sweet**, c 3, l 32-40).

Claim 7

Sweet anticipates the step of rejuvenating the computer software, based upon the predicted subsequent resource utilization (**Sweet**, c 3, l 32-40; EN: planned upgrades include software rejuvenation).

Claim 8

Sweet anticipates dynamically allocating at least one resource of the computer system, based upon the predicted subsequent resource utilization (**Sweet**, c 2, l 5-20; EN: adaptive changes achieve dynamic allocating).

Claim 9

Sweet anticipates identifying any of the plurality of devices that are relevant to a monitored resource (**Sweet**, c 2, l 5-34); and restricting at least one subsequent

operation of the computer system that corresponds to the monitored resource to use only devices identified as relevant to the monitored resource from among the plurality of devices (**Sweet**, c 2, l 5-34; EN: adaptive changes selects relevant devices).

Claims 10, 25

Sweet anticipates for a given device currently being evaluated for relevance to the monitored resource, computing a first regression model for the monitored resource on the member of active devices, based upon data acquired when the given device is active (**Sweet**, c 6, l 25-53; EN: such is a data sample); computing a second regression model for the monitored resource on the number of active devices, based upon data acquired when the given device is inactive (**Sweet**, c 6, l 25-53; EN: such is a second data sample); and comparing the first and the second regression models to determine whether the given device is relevant to the monitored resource (**Sweet**, c 6, l 25-53; EN: such would be the relationship between two sets of samples and the determination of covariance or correlation).

Claims 11, 26

Sweet anticipates the step of determining whether the first and the second regression models are statistically equivalent for a same number of active devices other than the given device (**Sweet**, c 6, l 46-53).

Claims 12, 27, 35

Sweet anticipates dividing the plurality of devices into device classes (**Sweet**, c 10, l 9-19); and counting the number of active devices in each of the device classes (**Sweet**, c 10, l 9-19; EN: map application contains the number of active devices).

Claims 13, 28

Sweet anticipates fitting a prediction model for a monitored resource, wherein prediction model of the prediction model depend on the number of active devices in each of the device classes (**Sweet**, c 10, l 9-19; EN: map application depends on network devices).

Claims 14, 29

Sweet anticipates the step of computing a prediction model for the number of active devices in each of the device classes (**Sweet**, c 10, l 9-19; EN: such as the key network devices).

Claims 20, 30, 37

Sweet anticipates a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform said method steps (**Sweet**, c 3, l 25-40).

Claim 21

Sweet anticipates monitoring, over a period of time, resource utilization and a number of active devices to obtain monitored values of the resource utilization and the number of active devices (**Sweet**, c 2, l 5-20; Fig. 8-15); and identifying resource saturation, based upon the monitored values of the resource utilization and the number of active devices (**Sweet**, c 4, l 42-58; EN: signature detection establishes monitored values for the active devices).

Claim 22

Sweet anticipates identifying step comprises the steps of fitting a regression model of a monitored resource on the number of active devices (**Sweet**, c 6, l 58-65); detecting, in the regression model departures of the monitored resource from linearity (**Sweet**, c 6, l 58-65; EN: such would be the application of a Gaussian density function).

Claim 23

Sweet anticipates fitting a regression model of prediction parameters of the monitored resource on the number of active devices (**Sweet**, c 6, l 58-65); and detecting departures from linearity of the prediction parameters of the monitored resource (**Sweet**, c 6, l 58-65; EN: such would be the application of a Gaussian density function).

Claims 24, 36

Sweet anticipates identifying any of the plurality of devices that are relevant to a monitored resource (**Sweet**, c 2, l 5-20); and restricting at least one subsequent operation of the computer system that corresponds to the monitored resource to use only devices identified as relevant to the monitored resource from among the plurality of devices (**Sweet**, c 2, l 5-20; EN: such as are necessary to achieve automatic adaptation).

Claims 31, 38, 39, 40

Sweet anticipates monitoring, over a period of time, a resource utilization and a number of active devices to obtain monitored values of the resource utilization and the

number of active devices (**Sweet**, c 2, l 5-20; Fig. 8-15); and predicting the effects of adding the new device, based upon the monitored values of the resource utilization and the number of active devices (**Sweet**, c 2, l 5-20; EN: such is automatic adaptation).

Claim 32

Sweet anticipates selecting a monitored resource (**Sweet**, c 2, l 5-20); and predicting the effects of adding the new device with respect to the selected monitored resource, based upon the monitored values of the resource utilization and the number of active devices (**Sweet**, c 2, l 5-20; EN: such is the function of automatic adaptation).

Claim 33

Sweet anticipates constructing a first prediction model of a distribution of the number of active devices (**Sweet**, c 2, l 5-20; EN: such as performance thresholds for the network); and modifying the first prediction model to produce a modified prediction model of the distribution of the number of active devices that accounts for the new device (**Sweet**, c 2, l 5-20; EN: such is the function of automatic adaptation).

Claim 34

Sweet anticipates computing a first prediction model for the selected monitored resource, based upon the first prediction model of the distribution of the number of active devices (**Sweet**, c 2, l 5-34; EN: such are application priorities); producing a first prediction of the selected monitored resource using the first prediction model for the selected monitored resource (**Sweet**, c 2, l 5-34; EN: such are application priorities); computing a modified prediction model for the selected monitored resource to account for the new device, based upon the modified prediction model of the distribution of the

number of active devices (**Sweet**, c 2, l 5-34; EN: such as automatic adaptation); producing a second prediction of the selected monitored resource, based upon the modified prediction model for the selected monitored resource (**Sweet**, c 2, l 5-34; EN: trade-offs); and comparing the first prediction and the second prediction of the selected monitored resource to evaluate the effects of adding the new device (**Sweet**, c 2, l 5-34; EN: trade-offs).

Claim 41

Sweet anticipates monitoring, over a period of time, a contemporaneous resource utilization and a number of active devices to obtain monitored values of the contemporaneous resource utilization and the number of active devices (**Sweet**, c 1, l 12-45; c 2, l 5-20; Figs. 8-15); and predicting the subsequent resource utilization, based upon the monitored values of the contemporaneous resource utilization and the number of active devices (**Sweet**, c 3, l 25-41; EN: para 11 applies; the number of active devices is integrated into the system operation as shown in Fig. 1); wherein said prediction step further comprises the steps of computing a regression model of prediction parameters on the member of active devices (**Sweet**, c 6, l 58-65; EN: as determined by the sample or example); constructing an empirical distribution of the number of active devices (**Sweet**, Fig. 8); and combining the regression model and the empirical distribution to produce a prediction model (**Sweet**, c 6, l 58-65; EN: μ and σ define the model).

Response to Arguments

9. Applicant's arguments filed on November 7, 2005 related to Claims 1-40 and 42 have been fully considered but are not persuasive.

In reference to Applicant's argument:

Claim 7 stands rejected under 35 U.S.C. § 112, second paragraph. The rejection is respectfully traversed. Applicants respectfully submit that the term "rejuvenating," in the context of claim 7, is not indefinite. Applicants direct the Examiner to U.S. Patent No. 6,810,495, entitled "Method and System for Software Rejuvenation via Flexible Resource Exhaustion Prediction," which is commonly assigned. The cited patent provides description of the concept of software rejuvenation, as well as citations to technical papers regarding software rejuvenation.

Examiner's response:

¶ 13. applies. @ c 1:26-32 of applicant cited reference (USP 6,810,495),

"software rejuvenation" is defined as follows:

5) Software failures are now known to be a dominant source of system outages. One common form of software failure is due to "software aging" in which a resource, such as memory usage, is increasingly consumed and which eventually causes the system to fail. Preventing such aging by restarting the system (or subsystem) is known as "software rejuvenation."

Claim 1. teaches "predicting subsequent resource utilization in a computer system" based on monitoring resources over time which requires computer system operation to realize the limitations. Rejuvenation or restarting of the software is a discontinuous operation and teaches away from the intent of claim 1 wherein resources are monitored over time ... a shutdown monitors nothing. Restarting means that all resource utilization returns to zero ... stops. The intent of claim 1. is for continuous operation as indicated by "monitoring over a period of time, a contemporaneous resource utilization." The limitations of claim 7 are uncertain or indefinite to claim 1.

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In reference to Applicant's argument:

In reference to claim 1, the Examiner cites col. 3, lines 25-41 of Sweet, which describe Figures 1 and 2 of the reference. Figure 1 of Sweet illustrates a system for automatic signature detection. A signature is a statistically detectable pattern in measurement data (e.g., high data traffic vs. low data traffic). Figure 1 of Sweet utilizes data gathering software to acquire data, which is analyzed to determine whether a signature exists. Nothing in Sweet discloses that the data gathering software monitors the number of active devices. It should be noted that the sole purpose for use of the acquired data, as disclosed in Sweet, is to determine whether a signature exists. No other purpose is disclosed. Figure 2, step 1030, discloses that if a signature exists, then the signature may be used for purposes such as alarming on unusual activity, reporting and planning.

The recited portions of Sweet do not disclose both monitored values of the contemporaneous resource utilization over a period of time and monitored values of the number of active devices over a period of time.

Examiner's response:

¶ 13. applies. Sweet teaches "Managing Computer Resources" (Title). Sweet teaches @ c 2:55-67; c 3:1-67 collection of computer system data that includes resource utilization (signature) and active devices (i.e. routers, computers, etc.) measure over time.

In reference to Applicant's argument:

Further, the recited portions of Sweet do not disclose using those monitored values for predicting the subsequent resource utilization. As previously noted, the data collection software of Sweet is only disclosed by Sweet for purposes of signature detection, which directly contradicts any statement arguing using such data for any other purpose.

Examiner's response:

¶ 13. applies. Sweet teaches "signature may be used as an alarm threshold (i.e., an alert threshold) to allow a network manager to be alerted automatically ..." @ c 2:65-67; c 3:1). A signature at an alarm threshold predicts condition of concern related to further resource utilization.

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In reference to Applicant's argument:

The Examiner argues that "the number of active devices is integrated in to the system operation as shown in Figure 1." Whether the Examiner's argument is true or not is entirely irrelevant to monitoring the number of active devices to obtain monitored values of the number of active devices. Sweet does not disclose monitored values of the number of active devices, in addition to the monitored values of the contemporaneous resource utilization.

Examiner's response:

¶ 13. applies. Sweet's "signature" @ c 2: 55-67 is synonymous with contemporaneous resource utilization. Sweet @ c 4:19-20 teaches monitoring of active devices ("use of a computer resource").

In reference to Applicant's argument:

The Examiner notes that he is entitled to a broadest reasonable interpretation. Although that is true, the Examiner's interpretation must come from some valid basis in the reference. As indicated above, Applicants are unclear as to what basis that is. Particularly, the Examiner has not expressed how Sweet discloses (a) monitored values of the contemporaneous resource utilization, (b) monitored values of the number of active devices, and (c) a prediction of the subsequent resource utilization of the monitored values of (a) and (b). Applicants are effectively left to guess as to how the Examiner's plain citations to Sweet apply to the instant claims, thus far to no avail. Further, the Examiner's citations to boilerplate language (i.e., in the "Examiner's Considerations" section of the Office Action) do not resolve the above concerns. It may be helpful if the Examiner explained the citations in his own words, rather than simply reciting MPEP boilerplate.

Examiner's response:

¶ 13. applies. As indicated above, Sweet applies by "signature" to "contemporaneous resource utilization" and use of computer resource and routers to the "monitoring of active devices." The use of the MPEP for application examination is statutory.

In reference to Applicant's argument:

With regards to claim 21, the Examiner states that "signature detection establishes monitored values for the active devices." As stated above, signature detection refers to statistically detectable patterns in measurement data, such as high data traffic and low data traffic. It is unclear how this has any relevance

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to the instant claims, which are not directed to the detection or use of signatures. It is also unclear what monitored values the Examiner is referring to since Sweet does not address monitoring the number of active devices. Further, Sweet does not even disclose "identifying resource saturation" under any circumstance.

Examiner's response:

¶ 13. applies. "Resource utilization" and "signatures" are synonymous. Both relate to system operation. Sweet @ c3:55 and c 4:19 monitors use of routers and computer resources which are active devices. The "identifying resource saturation is equivalent to an "alarm threshold" which Sweet teaches @ c 2:66. Prior Office Actions Apply.

In reference to Applicant's argument:

Claim 42 is also believed to be allowable for at least the reasons given for claim 1, and for the following additional reasons. Sweet does not disclose "wherein the monitored number is capable of varying over the period of time." Sweet also does not disclose "monitoring, over the period of time, a type of each of the active devices to obtain third monitored values of the type of the each of the active devices." Further, Sweet does not disclose "predicting the subsequent resource utilization, based upon the first monitored values, the second monitored values, and the third monitored values."

Examiner's response:

¶ 13. applies. Claim 42 is considered to represent "new matter" since the specification and drawings are silent on segmenting of historic data, comparison of segmented historic data, comparison of unequal length of historic data and comparison of non-homogeneous type data.

Examination Considerations

10. The claims and only the claims form the metes and bounds of the invention.

“Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)” (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

11. Examiner's Notes are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

12. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be

obvious to one of ordinary skill in the art, establishing thereby an inherent prima facie statement.

13. Examiner's Opinion: ¶¶ 10. – 12. apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Claims 1-40 and 42 are rejected.

Correspondence Information

16. Any inquiry concerning this information or related to the subject disclosure should be directed to the Primary Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David R. Vincent can be reached at (571) 272-3080.

Any response to this office action should be mailed to:

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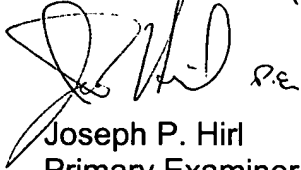
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Business Center (EBC) at 866-217-9197 (toll free).

A handwritten signature in black ink, appearing to read "J. P. Hirl", with a stylized flourish at the end.

Joseph P. Hirl
Primary Examiner
January 26, 2006